THE ASTROPHYSICAL JOURNAL

CONTENTS OF VOLUME 317, PART 1

1987 JUNE 1, Number 1

		Page	Fiche
THE D_n-σ RELATION FOR BULGES OF DISK GALAXIES: A NEW, INDEPENDENT MEASURE OF THE HUBBLE CONSTANT	*Alan Dressler*	1	64-A7
GRAVITATIONAL LENSING BY AN ENSEMBLE OF ISOTHERMAL GALAXIES	*Neal Katz and Bohdan Paczyński*	11	64-B3
GRAVITATIONAL CLUSTERING AND THE ORIGIN OF THE CORRELATION FUNCTION OF CLUSTERS OF GALAXIES	*A. Kashlinsky*	19	64-B11
DARK MATTER IN THE UNIVERSE: MASSIVE NEUTRINOS REVISITED	*R. Cowsik and P. Ghosh*	26	64-C4
INHOMOGENEOUS COSMOLOGICAL MODELS: NEW EXACT SOLUTIONS WITH DUST, ISOTROPIC RADIATION, AND ELECTROMAGNETIC FIELD	*Nazira Tomimura and Ioav Waga*	52	64-E2
DYNAMICS OF THE OUTER DISK AND HALO OF M31	*Richard Nolthenius and Holland C. Ford*	62	64-E13
THE COMPOSITION GRADIENT ACROSS M81	*D. R. Garnett and G. A. Shields*	82	64-G7
1.4 GHz CONTINUUM SOURCES IN THE CANCER CLUSTER	*E. E. Salpeter and J. M. Dickey*	102	65-B1
PRELIMINARY VLA LIMITS ON THE SUNYAEV-ZEL'DOVICH EFFECT IN ABELL 2218	*R. B. Partridge, R. A. Perley, N. Mandolesi, and F. Delpino*	112	65-B11
VLBI OBSERVATIONS OF THE 3C 111 JET	*Roger Linfield*	121	65-C7
METAL-ENHANCED GALACTIC WINDS. II. RADIATIVE COOLING AND PRESSURE EFFECTS	*J. Patricia Vader*	128	65-C14
THE X-RAY SPECTRUM OF MARKARIAN 509 OBSERVED BY *EXOSAT*	*M. Morini, N. A. Lipani, and D. Molteni*	145	65-E3
DEEP *EINSTEIN* X-RAY IMAGERY OF THE SMALL MAGELLANIC CLOUD	*Frederick C. Bruhweiler, Daniel A. Klinglesmith III, Theodore R. Gull, and Sabatino Sofia*	152	65-E11
ON THE CHEMICAL HOMOGENEITY OF THE 30 DORADUS H II REGION AND A LOCAL ENRICHMENT BY WOLF-RAYET STARS	*Michael Rosa and John S. Mathis*	163	65-F11
A NEAR-INFRARED STUDY OF THE NGC 6334–IV REGION	*P. M. Harvey, A. R. Hyland, and S. M. Straw*	173	65-G8
STAR FORMATION IN THE MAGELLANIC IRREGULAR GALAXY NGC 4449	*Harley A. Thronson, Jr., Deidre A. Hunter, C. M. Telesco, D. A. Harper, and R. Decher*	180	66-A3
SUPERSHELLS AND PROPAGATING STAR FORMATION	*Richard McCray and Minas Kafatos*	190	66-B1
THERMAL EMISSION FROM BOK GLOBULES	*Man Hoi Lee and C. Rogers*	197	66-B8
SHOCK-FRONT COMPRESSION OF THE MAGNETIC FIELD IN THE CANIS MAJOR R1 STAR-FORMATION REGION	*F. J. Vrba, R. Baierlein, and W. Herbst*	207	66-C4
L1689N: MISALIGNMENT BETWEEN A BIPOLAR OUTFLOW AND A MAGNETIC FIELD	*Alwyn Wootten and Robert B. Loren*	220	66-D1
POLARIZATION, JETS, AND THE DISTRIBUTION OF CIRCUMSTELLAR DUST AROUND T TAURI STARS AND OTHER YOUNG INFRARED SOURCES	*Pierre Bastien*	231	66-D12
ON THE ANTONOV CRITERION FOR GRAVOTHERMAL INSTABILITY	*J. F. Luciani and R. Pellat*	241	66-E8
AXIAL RATIOS AND ORIENTATIONS FOR 100 GALACTIC GLOBULAR STAR CLUSTERS	*Raymond E. White and Stephen J. Shawl*	246	66-E13
AN INSTABILITY OF RADIATIVE ACCELERATION	*J. I. Katz*	264	66-G3

CONTENTS

	Page	Fiche
ABERRATION AND ADVECTION EFFECTS IN A PLANE-PARALLEL MEDIUM IN MOTION ..... *A. Peraiah*	271	66-G10
RESONANT RAMAN-CYCLOTRON SCATTERING IN VERY STRONG MAGNETIC FIELDS *Edouard Miska and Dominique Miska*	282	67-A7
POLARIZATION OF LIGHT SCATTERED FROM THE WINDS OF EARLY-TYPE STARS *J. P. Cassinelli, K. H. Nordsieck, and M. A. Murison*	290	67-B1
PULSATIONS OF WHITE DWARF STARS WITH THICK HYDROGEN OR HELIUM SURFACE LAYERS *Arthur N. Cox, Sumner G. Starrfield, Russell B. Kidman, and W. Dean Pesnell*	303	67-B14
THE ROLE OF THE VISCOUS SECULAR INSTABILITY IN ROTATING NEUTRON STARS ..... *Lee Lindblom*	325	67-D9
DETECTION OF A BY DRACONIS–LIKE BINARY COMPANION TO THE CONTACT BINARY XY LEONIS *Samuel C. Barden*	333	67-E4
ON THE REALITY OF CERTAIN SPECTROSCOPIC ORBITS ..... *C. L. Morbey and R. F. Griffin*	343	67-F1
IMPLICATIONS FOR SOLAR-TYPE BINARY STATISTICS OF THE MORBEY-GRIFFIN IMPROVED BINARY ANALYSIS ..... *Helmut A. Abt*	353	67-F11
THE EARLY SPECTRAL PHASE OF TYPE Ib SUPERNOVAE: EVIDENCE FOR HELIUM *R. P. Harkness, J. C. Wheeler, B. Margon, R. A. Downes, R. P. Kirshner, A. Uomoto, E. S. Barker, A. L. Cochran, H. L. Dinerstein, D. R. Garnett, and R. M. Levreault*	355	67-F14
S-MATRIX CALCULATIONS OF THE TRIPLE-ALPHA REACTION ..... *Ikko Fushiki and D. Q. Lamb*	368	68-A1
ULTRAVIOLET OBSERVATIONS OF EXTENSIVE VARIABILITY IN THE STELLAR WIND OF ξ PERSEI *Raman K. Prinja, Ian D. Howarth, and Huib F. Henrichs*	389	68-B11
TEMPERATURE AND EMISSION-MEASURE DISTRIBUTIONS FOR SEVERAL PLANETARY NEBULAE *J. P. Basart and C. T. Daub*	412	68-D14
OXYGEN CHEMISTRY OF SHOCKED INTERSTELLAR CLOUDS. I. RATE CONSTANTS FOR THERMAL AND NONTHERMAL INTERNAL ENERGY DISTRIBUTIONS ..... *A. F. Wagner and M. M. Graff*	423	68-E11
OXYGEN CHEMISTRY OF SHOCKED INTERSTELLAR CLOUDS. II. EFFECTS OF NONTHERMAL INTERNAL ENERGY ON CHEMICAL EVOLUTION ..... *M. M. Graff and A. Dalgarno*	432	68-F6
MOLECULES AT EARLY EPOCHS. II. H_2 AND CO TOWARD PHL 957 *John H. Black, Frederic H. Chaffee, Jr., and Craig B. Foltz*	442	68-G2
THE COMPLEX ABSORPTION SPECTRUM OF THE BROAD ABSORPTION LINE QSO 1303+308 *Craig B. Foltz, Ray J. Weymann, Simon L. Morris, and David A. Turnshek*	450	68-G10
SPECTROPHOTOMETRY OF SIX BROAD ABSORPTION LINE QSOs *Vesa T. Junkkarinen, E. Margaret Burbidge, and Harding E. Smith*	460	69-A7
SOLAR OSCILLATIONS: A METHOD FOR DERIVING NONLINEAR EFFECTS ..... *Donat G. Wentzel*	477	69-B10
VELOCITY FIELDS IN A LOW-LATITUDE CORONAL HOLE: RESULTS FROM THE *SOLAR MAXIMUM MISSION* *D. J. Mullan and W. L. Waldron*	487	69-C5
EXPLOSIVE EVAPORATION IN SOLAR FLARES ..... *George H. Fisher*	502	69-D6
HEATING OF THE SOLAR CORONA BY THE RESONANT ABSORPTION OF ALFVÉN WAVES ..... *Joseph M. Davila*	514	69-E4
MULTIFREQUENCY OBSERVATIONS OF A SOLAR ACTIVE REGION DURING A PARTIAL ECLIPSE *Dale E. Gary and G. J. Hurford*	522	69-E12
INTERPLANETARY RADIAL COSMIC-RAY GRADIENTS AND THEIR IMPLICATION FOR A POSSIBLE LARGE MODULATION EFFECT AT THE HELIOSPHERIC BOUNDARY ..... *W. R. Webber and J. A. Lockwood*	534	69-F11
STATISTICAL EQUILIBRIUM IN COMETARY C_2. IV. A 10 LEVEL MODEL INCLUDING SINGLET-TRIPLET TRANSITIONS ..... *K. S. Krishna Swamy and C. R. O'Dell*	543	69-G7
VERY HIGH ENERGY GAMMA-RAY SPECTROSCOPY ..... *David Eichler and James H. Adams, Jr.*	551	70-A1
ERRATUM		
A Radio Survey of Symbiotic Stars ..... *E. R. Seaquist, A. R. Taylor, and S. Button*	555	70-A5
INSTRUCTIONS TO AUTHORS	i	70-A6

CONTENTS

1987 JUNE 15, Number 1

	Page	Fiche
THE REDSHIFT-DISTANCE RELATION. IXa. REINTERPRETATION OF THE LOCAL GROUP DECELERATION DATA EMPHASIZING THE KAHN–WOLTJER MASS DETERMINATION — *Allan Sandage*	557	72-C1
DOES LOWER Ω ALLOW A RESOLUTION OF THE LARGE-SCALE STRUCTURE PROBLEM? — *Joseph Silk and Nicola Vittorio*	564	72-C8
A FLUID MODEL FOR THE EVOLUTION OF LARGE-SCALE STRUCTURE — *P. J. E. Peebles*	576	72-D8
THE LOCAL EXTRAGALACTIC VELOCITY FIELD, THE LOCAL MEAN MASS DENSITY, AND BIASED GALAXY FORMATION — *M. E. Brown and P. J. E. Peebles*	588	72-E6
ARE THE VIRIAL MASSES OF CLUSTERS SMALLER THAN WE THINK? — *L. L. Cowie, M. Henriksen, and R. Mushotzky*	593	72-E11
THE EXTRAGALACTIC BACKGROUND LIGHT AND A DEFINITIVE RESOLUTION OF OLBERS'S PARADOX — *Paul S. Wesson, K. Valle, and R. Stabell*	601	72-F5
NONUNIQUENESS OF SELF-CONSISTENT EQUILIBRIUM SOLUTIONS FOR THE PERFECT ELLIPTIC DISK — *P. T. de Zeeuw, C. Hunter, and M. Schwarzschild*	607	72-F11
DUST DISTRIBUTION IN SPIRAL GALAXIES — *Nikolaos D. Kylafis and John N. Bahcall*	637	73-A13
THE CORRELATION OF SPIRAL ARM MOLECULAR CLOUDS WITH COLD ATOMIC HYDROGEN — *W. L. Peters and F. N. Bash*	646	73-B8
SUBSTRUCTURE IN THE COMA CLUSTER — *Michael Fitchett and Rachel Webster*	653	73-C1
ALIGNMENT STATISTICS OF CLUSTERS WITH THEIR BRIGHTEST MEMBERS AT BRIGHT AND FAINT ISOPHOTES — *Mitchell F. Struble*	668	73-D2
SPECTROSCOPY AND *JHK* PHOTOMETRY OF TYPE II CEPHEIDS IN THE MAGELLANIC CLOUDS — *Douglas L. Welch*	672	73-D6
FINE-SCALE MOTION IN NGC 6514 AND NGC 6523 — *C. R. O'Dell, L. K. Townsley, and Hector O. Castañeda*	676	73-D10
EVIDENCE FOR TURBULENCE IN H II REGIONS — *C. R. O'Dell and Hector O. Castañeda*	686	73-E6
SULFUR, CARBON, HELIUM, AND HYDROGEN 125α OBSERVATIONS AND PHYSICAL ANALYSIS OF THE W48 NEUTRAL INTERFACE — *J. P. Vallée*	693	73-E13
CARBON-TO-NITROGEN RATIOS ALONG THE EVOLUTIONARY SEQUENCE OF M67 — *Jeffery A. Brown*	701	73-F7
GAMMA-RAY CONSTRAINTS ON ^{22}Na YIELDS IN NOVA EXPLOSIONS — *J. C. Higdon and William A. Fowler*	710	73-G2
ON INTERACTING HELIUM STAR–WHITE DWARF PAIRS AS SUPERNOVA PRECURSORS — *Icko Iben, Jr., Ken'ichi Nomoto, Amedeo Tornambè, and Alexander V. Tutukov*	717	73-G11
THE CORE HELIUM FLASH AND SURFACE ABUNDANCE ANOMALIES — *Robert G. Deupree and Richard K. Wallace*	724	74-A4
VISCOSITY OF DENSE MATTER — *Naoki Itoh, Yasuharu Kohyama, and Hideo Takeuchi*	733	74-A13
COMPACT X-RAY BINARIES IN HIERARCHICAL TRIPLES. II. SEPARATION OF THE INNER BINARY — *Charles D. Bailyn*	737	74-B3
RAPID VARIABILITY OF P CYGNI LINES IN MASSIVE X-RAY BINARIES — *Timothy R. Kallman, Richard McCray, and G. Mark Voit*	746	74-B12
THEORY OF TRANSITION-LAYER EMISSION MEASURES AND CORONAE — *Erika Böhm-Vitense*	750	74-C2
THE RELATION BETWEEN APPARENT TEMPERATURE AND MASS-LOSS RATE IN HYPERGIANT ERUPTIONS — *Kris Davidson*	760	74-C12
TIME-RESOLVED SPECTROPHOTOMETRY OF THE CATACLYSMIC VARIABLE EX HYDRAE — *Ronald H. Kaitchuck, Panayiotis A. Hantzios, Panagiotis Kakaletris, R. Kent Honeycutt, and Eric M. Schlegel*	765	74-D3
"MARGINAL" BY DRACONIS STARS — *Bernard W. Bopp*	781	74-E8
DUPLICITY AMONG STARS WITH STRONG CHROMOSPHERIC Ca II EMISSION LINES: A STATISTICAL SURVEY — *Arthur Young, Richard A. Mielbrecht, and Helmut A. Abt*	787	74-F1
THE LITHIUM ABUNDANCE IN HALO STARS — *L. M. Hobbs and Douglas K. Duncan*	796	74-F10

		Page	Fiche
CARBON ($^{12}C/^{13}C$) AND OXYGEN ($^{16}O/^{17}O$) ISOTOPIC RATIOS IN SEVEN EVOLVED STARS	*James F. Dominy and George Wallerstein*	810	74-G11
ON THE SOURCE OF THE VIOLET DEPRESSION IN CARBON STARS: A STUDY OF THE BALMER DECREMENT IN CARBON LONG-PERIOD VARIABLES	*Maria Antonietta Orlati*	819	75-A6
PHOTOMETRY OF SS 433 OVER 7 YEARS: STUDY OF TWO PERIODICITIES	*Tsevi Mazeh, James C. Kemp, Elia M. Leibowitz, Herbert Meningher, and Haim Mendelson*	824	75-A13
THE EQUILIBRIA OF ROTATING ISOTHERMAL CLOUDS	*Masayoshi Kiguchi, Shinji Narita, Shoken M. Miyama, and Chushiro Hayashi*	830	75-B5
GAMMA-RAY BURST LOCALIZATION BY *HEAO 3*	*R. A. Schwartz, J. C. Ling, W. A. Mahoney, and A. S. Jacobson*	846	75-C7
CALCULATION OF THE MEAN EQUILIBRIUM CHARGES OF ENERGETIC IONS AFTER PASSING THROUGH A HOT PLASMA	*A. Luhn and D. Hovestadt*	852	75-D1
CYLINDRICAL ASTROPHYSICAL MASER MODELS: POLARIZATION DUE TO MAGNETIC FIELDS	*L. R. Western*	858	75-D7
THE HYDROGEN MOLECULAR ION IN AN ARBITRARY HOMOGENEOUS MAGNETIC FIELD	*D. R. Bhigham and J. M. Wadehra*	865	75-D14
A NEW CONSTRAINT ON THE GALACTIC PLANE ^{26}Al DISTRIBUTION	*C. J. MacCallum, A. F. Huters, P. D. Stang, and M. Leventhal*	877	75-F1
RADIAL VELOCITIES OF LATE-TYPE STARS IN THE GALACTIC CENTER	*K. Sellgren, D. N. B. Hall, S. G. Kleinmann, and N. Z. Scoville*	881	75-F5
ON THE RELATION BETWEEN MAGNETIC FIELD STRUCTURES AND GRANULATION	*A. M. Title, T. D. Tarbell, and K. P. Topka*	892	75-G3
THE STRUCTURE AND DISSIPATION OF FORCED CURRENT SHEETS IN THE SOLAR ATMOSPHERE	*Tzihong Chiueh and Ellen G. Zweibel*	900	76-A7
INCOMPRESSIBLE MAGNETOHYDRODYNAMIC SURFACE WAVES: NONLINEAR ASPECTS	*Joseph V. Hollweg*	918	76-B11
THE $^{12}C/^{13}C$ ISOTOPE RATIO OF THE INTERSTELLAR MEDIUM IN THE NEIGHBORHOOD OF THE SUN	*Isabel Hawkins and Michael Jura*	926	76-C5
THE MEAN IONIC CHARGE OF SILICON IN ^{3}He-RICH SOLAR FLARES	*A. Luhn, B. Klecker, D. Hovestadt, and E. Möbius*	951	76-E2
EVIDENCE FOR GENTLE CHROMOSPHERIC EVAPORATION DURING THE GRADUAL PHASE OF LARGE SOLAR FLARES	*B. Schmieder, T. G. Forbes, J. M. Malherbe, and M. E. Machado*	956	76-E8
SOLAR CYCLE STUDY OF INTERPLANETARY LYMAN-ALPHA VARIATIONS: *PIONEER VENUS* ORBITER SKY BACKGROUND RESULTS	*J. M. Ajello, A. I. Stewart, G. E. Thomas, and A. Graps*	964	76-F5
SPECTROPHOTOMETRY OF COMETS GIACOBINI–ZINNER AND HALLEY	*Stephen C. Tegler and C. R. O'Dell*	987	77-A2
SURFACE BRIGHTNESS PROFILES OF 10 COMETS	*D. C. Jewitt and Karen J. Meech*	992	77-A7
ABSTRACTS OF THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1987 JULY ISSUE			
Isophotal Diameters of Cluster Spirals	*M. E. Cornell, M. Aaronson, G. Bothun, and J. Mould*	1002	77-B5
Multiple-Shell Planetary Nebulae. I. Morphologies and Frequency of Occurrence	*You-Hua Chu, George H. Jacoby, and Richard Arendt*	1002	77-B5
The Kinematical and Binary Properties of Association and Field O Stars	*D. R. Gies*	1003	77-B6
Collisional Excitation of Interstellar Sulfur Dioxide	*Amedeo Palma*	1003	77-B6
INDEX TO VOLUME 317, PARTS 1 AND 2		*See Part 2*	